**WE CLAIM AS OUR INVENTION:**

1. An implantable heart stimulating device comprising:

a first pacing circuit adapted for connection to a first pacing electrode, adapted for positioning for interaction with a first ventricle of a heart, to deliver signals from the first pacing circuit to pace the first ventricle;

a first sensing circuit adapted for connection to a first sensing electrode, adapted to be positioned for interaction with the first ventricle to supply signals to the first sensing circuit for sensing the first ventricle;

a second pacing circuit adapted for connection to a second pacing electrode, adapted to be positioned to interact with a second ventricle of the heart, to deliver signals from the second pacing circuit to the second ventricle to pace the second ventricle;

a second sensing circuit adapted for connection to a second sensing electrode, adapted to be positioned to interact with the second ventricle, to supply signals to the second sensing circuit to sense the second ventricle;

a control circuit operable with time cycles corresponding to normal cardiac cycles, said control circuit being connected to said first pacing circuit and to said first sensing circuit to detect an evoked response to a pacing pulse delivered by said first pacing circuit by sensing, via said first sensing circuit, within a first time interval following said pacing pulse delivered by said first pacing circuit;

said control circuit being connected to said second pacing circuit and said second sensing circuit for detecting an evoked response to a pacing pulse delivered by said second pacing circuit by sensing, via said second sensing circuit, within a second time interval following the pacing pulse delivered by said second pacing circuit;

said control circuit, within one of said time cycles, causing said first and second pacing circuits to respectively deliver pacing pulses with a time gap therebetween, said pacing pulse delivered by said second pacing circuit following substantially within said first time interval and thereby masking detection of an evoked response to a pacing pulse delivered by the first pacing circuit; and

said control circuit temporarily modifying delivery of the pacing pulses by said second pacing circuit so that, during at least one of said time cycles, no pacing pulse is delivered by said second pacing circuit during said first time interval.

2. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit temporarily modifies delivery of said pacing pulses by said second pacing circuit by causing said second pacing circuit to not deliver any pacing pulses during said at least one time cycle.

3. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit temporarily modifies delivery of said pacing pulses by said second pacing circuit by, during said at least one time cycle, decreasing said

time gap so that said second pacing circuit delivers a pacing pulse at substantially a same time as a pacing pulse delivered by said first pacing circuit.

4. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit temporarily modifies delivery of said pacing pulses by said second pacing circuit by, during said at least one time cycle, increasing said time gap so that a pacing pulse delivered by said second pacing circuit occurs after said first time interval.

5. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit temporarily modifies delivery of said pacing pulses by said second pacing circuit during a plurality of said time cycles.

6. An implantable heart stimulating device as claimed in claim 5 wherein said time cycles in said plurality of time cycles immediately follow each other in succession.

7. An implantable heart stimulating device as claimed in claim 5 wherein said time cycles in said plurality of said time cycles do not immediately follow each other and are respectively separated by at least one time cycle.

8. An implantable heart stimulating device as claimed in claim 5 wherein said control circuit, during said plurality of said time cycles, varies an energy of the pacing pulses delivered by said first pacing circuit and detects, via

said first sensing circuit, occurrences of evoked responses during said first time interval to determine an appropriate energy for the pacing pulses delivered by said first pacing circuit.

9. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit automatically initiates said temporary modification of the delivery of said pacing pulses by said second pacing circuit at predetermined points in time.

10. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit initiates said temporary modification of the delivery of said pacing pulses by said second pacing circuit upon detection of at least one signal indicative of an absence of capture by said first ventricle.

11. An implantable heart stimulating device as claimed in claim 10 wherein said control circuit senses in a first time window, via said first sensing circuit, signals representatives of an R-wave in said first ventricle, transferred to said first ventricle from another region of the heart, and wherein said first time window does not coincide with said first time interval and does not start before a pacing pulse delivered by said first pacing circuit, and wherein said signal indicative of an R-wave is said signal indicative of an absence of capture.

12. An implantable heart stimulating device as claimed in claim 11 wherein said control circuit causes said first time window before 400ms after delivery of said pacing pulse by said first pacing circuit.

13. An implantable heart stimulating device as claimed in claim 11 wherein said control circuit causes said first time window to start between 0ms and 150ms after the delivery of said pacing pulse by said second pacing circuit.

14. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit starts said first time interval at a time in a range between 0 and 30ms after the delivery of a pacing pulse by said first pacing circuit, and sets said first time interval to a duration between 25 and 100ms.

15. An implantable heart stimulating device as claimed in claim 1 wherein said control circuit starts said second time interval at a time in a range between 0 and 30ms after the delivery of a pacing pulse by said second pacing circuit, and sets said second time interval to a duration between 25 and 100ms.

16. An implantable heart stimulating system comprising:

a first pacing electrode adapted for positioning for interaction with a first ventricle of a heart;

a first pacing circuit connected to said first pacing electrode to deliver signals from the first pacing circuit to pace the first ventricle;

a first sensing electrode adapted to be positioned for interaction with the first ventricle;

a first sensing circuit connected to said first sensing electrode to supply signals to the first sensing circuit for sensing the first ventricle;

a second pacing electrode adapted to be positioned to interact with a second ventricle of the heart;

a second pacing circuit connected to said second pacing electrode to deliver signals from the second pacing circuit to the second ventricle to pace the second ventricle;

a second sensing electrode adapted to be positioned to interact with the second ventricle;

a second sensing circuit connected to said second sensing electrode to supply signals to the second sensing circuit to sense the second ventricle;

a control circuit operable with time cycles corresponding to normal cardiac cycles, said control circuit being connected to said first pacing circuit and to said first sensing circuit to detect an evoked response to a pacing pulse delivered by said first pacing circuit by sensing, via said first sensing circuit, within a first time interval following said pacing pulse delivered by said first pacing circuit;

said control circuit being connected to said second pacing circuit and said second sensing circuit for detecting an evoked response to a pacing pulse delivered by said second pacing circuit by sensing, via said

second sensing circuit, within a second time interval following the pacing pulse delivered by said second pacing circuit;

said control circuit, within one of said time cycles, causing said first and second pacing circuits to respectively deliver pacing pulses with a time gap therebetween, said pacing pulse delivered by said second pacing circuit following substantially within said first time interval and thereby masking detection of an evoked response to a pacing pulse delivered by the first pacing circuit; and

said control circuit temporarily modifying delivery of the pacing pulses by said second pacing circuit so that, during at least one of said time cycles, no pacing pulse is delivered by said second pacing circuit during said first time interval.

17. An implantable heart stimulating system as claimed in claim 1 wherein said first sensing electrode and said first pacing electrode are a same electrode, and wherein said second sensing electrode and said second pacing electrode are a further, same electrode.

18. A method for bi-ventricular stimulation and sensing of a heart, comprising the steps of:

connecting a first pacing circuit adapted for connection to a first pacing electrode and positioning said first pacing electrode for interaction with a first ventricle of a heart, to deliver signals from the first pacing circuit to pace the first ventricle;

connecting a first sensing circuit to a first sensing electrode and positioning said first sensing electrode for interaction with the first ventricle to supply signals to the first sensing circuit for sensing the first ventricle;

connecting a second pacing circuit to a second pacing electrode and positioning said second pacing electrode to interact with a second ventricle of the heart, to deliver signals from the second pacing circuit to the second ventricle to pace the second ventricle;

connecting a second sensing circuit to a second sensing electrode and positioning said second sensing electrode to interact with the second ventricle, to supply signals to the second sensing circuit to sense the second ventricle;

operating a control circuit operable with time cycles corresponding to normal cardiac cycles and connecting said control circuit to said first pacing circuit and to said first sensing circuit for detecting an evoked response to a pacing pulse delivered by said first pacing circuit by sensing, via said first sensing circuit, within a first time interval following said pacing pulse delivered by said first pacing circuit;

connecting said control circuit being to said second pacing circuit and said second sensing circuit for detecting an evoked response to a pacing pulse delivered by said second pacing circuit by sensing, via said second sensing circuit, within a second time interval following the pacing pulse delivered by said second pacing circuit;

from control circuit, within one of said time cycles, causing said first and second pacing circuits to respectively deliver pacing pulses with a time gap therebetween, said pacing pulse delivered by said second pacing circuit following substantially within said first time interval and thereby masking detection of an evoked response to a pacing pulse delivered by the first pacing circuit; and

with control circuit, temporarily modifying delivery of the pacing pulses by said second pacing circuit so that, during at least one of said time cycles, no pacing pulse is delivered by said second pacing circuit during said first time interval.

19. A method as claimed in claim 18 comprising selecting said pacing pulses to treat congestive heart failure of said heart.

20. A method as claimed in claim 18 comprising selecting said pacing pulses to treat a bundle branch block of the heart.